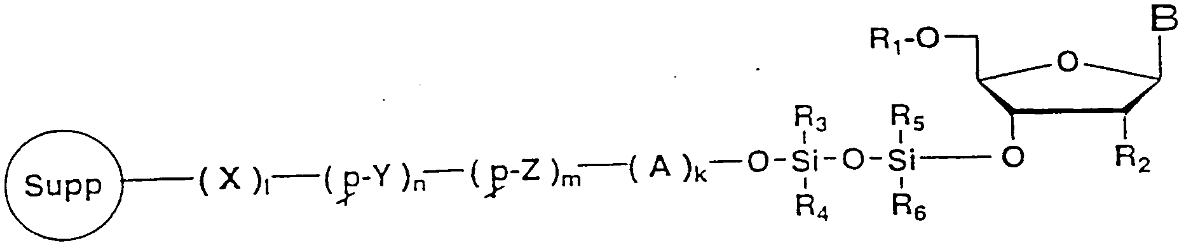
CLAIMS

1. A support system, for solid phase synthesis of oligomers, comprising a support, a linker and a starting compound of the oligomer, **characterized** in that the starting compound of the oligomer is bound to the support via a disiloxyl linkage.

2. A support system according to claim 1, **characterized** in that the starting compound is a nucleoside and the synthesis is an oligonucleotide synthesis.

3. A support system according to claims 1 or 2, **characterized** by having the formula



wherein
B is a nucleoside or deoxynucleoside base; R_2 is -H, -OH, or OR_7 in which R_7 is a protecting group; R_1 is a protecting group; R_3, R_4, R_5, R_6 taken separately each represent alkyl, aryl, cycloalkyl, alkenyl, aralkyl, cycloalkylalkyl, alkyloxy, aryloxy, cycloalkyloxy, alkenyloxy and aralkyloxy; Supp is a solid support; X is an anchoring group used for covalent bonding to the support;
$(p\text{-}Y)_n$ and $(p\text{-}Z)_m$ are oligophosphotriester linkers, wherein p represents a phosphotriester, Y and Z are independently selected from a nucleoside and a rest of a diol, A is an aliphatic or aromatic group, n is a number between 0-50, preferably 0-10, and k, l, m are each a numbers of 0 or 1, with the proviso that when m and n are 0 then l and k are 0

and with the proviso that when $m > 0$ then k is 0 and X is O or S.

4. A support system according to claim 3, **characterized in** that the anchoring group is O, S or an amide function.

5. A support system according to any one of the above claims, **characterized in** that R_1 is a trityl, monomethoxy trityl, dimethoxytrityl, pixyl or other higher alkoxy-substituted trityl- protecting groups, and B is adenine, guanine, cytosine, uracil, thymine, or inosine.

6. A support system according to any one of the above claims, **characterized in** that R_3, R_4, R_5, R_6 are isopropyl.

7. A method for synthesis of oligonucleotides on a solid support, **characterized** by the following steps:
(i) preparing a support system as defined in claim 3;
(ii) condensation of nucleotides onto the first nucleoside of the support system to synthesize an oligonucleotide;
(iii) removal of all protecting groups on the oligonucleotide exept the 5'-protecting group, and cleavage of apurinic sites formed during acid-catalysed deprotection;
(iv) cleavage of the full length product from the support; and
(v) purification of the oligonucleotide.

8. A method according to claim 7, **characterized in** that in step (i) an oligophosphotriester linker $(p\text{-}Y)_n$ is synthesized on the solid support and that a starting nucleoside is bound to the linker via a $(p\text{-}z)_m$ linker and a disiloxyl group.

9. A method according to claim 7, **characterized in** the disiloxyl linkage is cleaved selectively with tetra alkyl ammonium fluoride before step (v) and the purification is performed by reversed phase chromatography, using the 5'-protecting group as an affinity handle.

10. A method according to claim 7, **characterized in** step (v) is performed by exonuclease treatment whereby non-protected oligonucleotides will be digested.